Africa RISING - Enhancing partnership among Africa RISING, NAFAKA and TUBORESHE CHAKULA Programs for fast tracking delivery and scaling of agricultural technologies in Tanzania

Quarterly Progress Report (01 October 2015 – 31 December 2015)

31 December, 2015

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IITA – International Institute of Tropical Agriculture

QUARTERLY PERFORMANCE REPORT
(1 October 2015 – 31 December 2015)

Thematic Implementing Partners:

AfricaRice – Rice Systems

AVRDC – Vegetables

CIMMYT – Maize Systems

IITA – Postharvest and Nutrition

COVER PHOTO

Farmers' sensitization meeting in Sasenga village, Mbozi, Mbeya region, with F. Baijukya (IITA) (Photo credit: G. Ndibalema/IITA)

CONTENTS

ACRONYMS

AfricaRice	Africa Rice Center
Africa RISING	Africa Research in Sustainable Intensification for the Next Generation
ARI-Hombolo	Agricultural Research Institute, Hombolo
AVRDC	The World Vegetable Center
CIAT	International Center for Tropical Agriculture
CIMMYT	International Maize and Wheat Improvement Center
DAICO	District Agriculture, Irrigation and Cooperative Officer
FtF	Feed the Future
IITA	International Institute of Tropical Agriculture
IPM	Integrated Pest Management
NAFAKA	Tanzania Staples Value Chain Activity (USAID FtF Project)
TUBOCHA	Tuboreshe Chakula (USAID FtF Project)
VBAA	Village-based Agricultural Agent
ZOI	(FtF) Zone of Influence

Tables

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1 EXECUTIVE SUMMARY

During the first quarter of year 2, the Africa RISING-NAFAKA-TUBOCHA partnership and scaling project accomplished a variety of activities. With the exception of rice-related activities, work plans and budgets for project activities were reviewed and approved by Management. Leadership for rice activities was changed to ARI Dakawa and the new team is developing a workplan and budget that will be approved during the next quarter. The maize team conducted a planning meeting to deliberate on activities for the next quarter. A series of sensitization and training sessions were held by the different teams; these included the following: community sensitization meetings for maize-related activities in 7 districts reaching 1,655 participants; training of lead farmers for maize activities; training meetings for vegetables lead farmers reaching 213 farmers and 24 field extension staff from both Government and the private sector; and training of 14 and 13 agronomists in rice- and maize-related activities respectively, in preparation for upcoming demonstration and dissemination activities. The maize and vegetables teams selected 10 villages in the new project sites of Mbeya and 6 villages in Iringa for project activities with the maize team also adding another 3 new villages in the Kongwa/Kiteto region to enhance scaling. Agro-inputs for use in the establishment of demonstration sites have been procured and delivered for most locations. The postharvest team conducted a survey to establish what the constraints were to food fortification; this was completed, targeting 402 stakeholders. The team is also finalizing the development of a postharvest training manual and recipe book to be used by project stakeholders.

In terms of project performance against FtF indicators, only data on output indicators are reported during the current quarter. Data on outcome indicators will be reported after planting next quarter when farmers will be expected to have adopted technologies as a result of previous years. For the output indicators reported against annual targets, during the current quarter, 847 farmers representing 7.8% of the FY target received short-term food security training; 31% of private enterprises and farmers' organizations received USG assistance, 11.8% of rural households benefited and over 150% of target households established home gardens as a result of this project. For all the achievements that are over 50%, the results are largely attributed to the activities of the vegetables team whose approach involves training farmers and giving them seed kits. During the next quarter, all teams will focus on the establishment of demonstration plots, training of lead farmers and extensionists, and field monitoring and finalization of training materials. For rice activities, a new team will be launched to continue with the implementation of rice-related activities.

2 INTRODUCTION

2.1 Project description

Africa RISING partners are involved in identifying and developing best performing interventions for improving agricultural production. These are compiled into information and technology packages to be delivered through a network of NAFAKA and other public and private sector actors, creating an opportunity for mainstreaming into wider rural development programs. Attractive interventions in this project include the introduction of improved crop varieties, dissemination of best-bet crop management packages, rehabilitation and protection of natural resources, and postharvest management.

The project focus is on three crop enterprises – maize, rice, and vegetables – with postharvest handling and nutrition as a cross-cutting theme. The key partners in the project include international agricultural research centers (IITA, CIMMYT, CIAT, ICRAF, and ICRISAT), the World Vegetable Center (AVRDC), and one USAID-funded project, NAFAKA. These work in partnership with national institutions (research and universities) as well as local government authorities, the private sector (seed companies, millers, and processors) and NGOs to deliver on the following objectives:

1. Introduce and promote improved and resilient varieties of food crops to farm households in a manner that complements their ongoing farm enterprises, contributes to sustainable agricultural resource management, and offers nutritional advantages and alternative market channels;
2. Disseminate best-bet agronomic management packages around the most promising new crop varieties suited to widely representative agro-ecological zones and market proximity;
3. Protect land and water resources and foster agricultural biodiversity through the introduction of soil and water management practices;
4. Increase food security and improve household nutrition among the most vulnerable households and their members, especially women and children, by introducing locally adapted and nutrient-rich vegetables;
5. Introduce and promote postharvest management technologies for maize, rice, legumes, and selected vegetable crops to reduce losses and bring quality up to market standards;
6. Offer and expand capacity services to members of grassroots farmers' associations, platform partners, and development institutions in the scaling process (capacity building), paying particular attention to the special opportunities available to women farmers as technical and nutritional innovators and resource managers.

2.2 Geographic Zones of Influence

During the 3-year project period, activities are being conducted in the primary regions of Manyara, Dodoma, and Morogoro. With the beginning of year 2 on 1 October, the project was extended to Iringa and Mbeya regions. All the 5 regions are in the FtF's ZoI (Fig. 1). Action sites are selected according to the following criteria:

(i) Agro-ecological characteristics which are suitable for the selected technologies as well as the availability of suitable partners.
(ii) Visibility, accessibility, and land suitability.

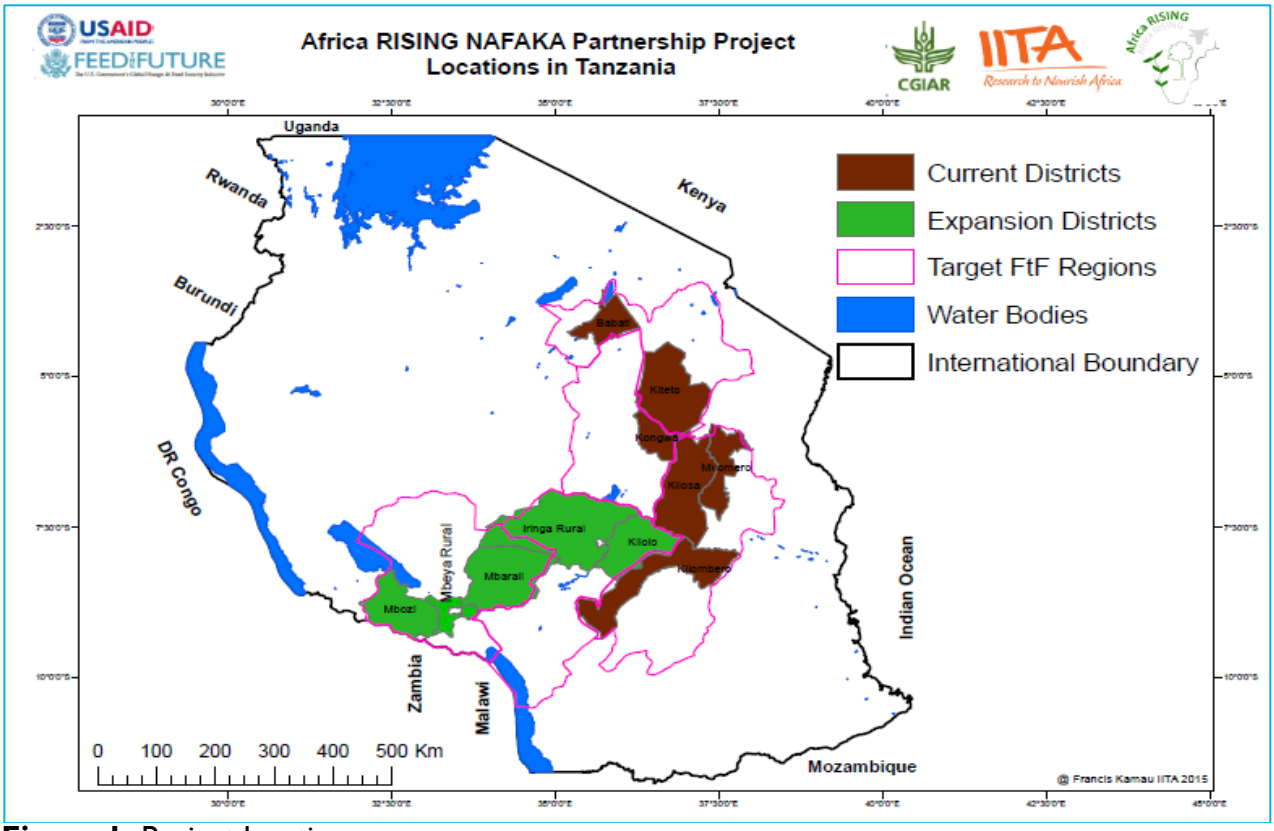

Figure 1: Project locations

3 IMPLEMENTATION PROGRESS

3.1 Project Management

All teams submitted workplans and budgets which were reviewed and approved. This has enabled teams to start activity implementation relatively early. Rice-related activities are the only exception in this regard.

Following a meeting on 28 September and correspondence between the lead implementer for rice activities (AfricaRice), donor representatives, and key stakeholders (IITA as project leader and NAFAKA as a primary partner and scaling platform), it was decided that a change was necessary if rice-related project goals were to be realized. A team led by a national agricultural research institute, ARI-Dakawa, is being constituted to lead implementation of rice activities beginning in January 2016.

Following the maize team planning meeting held on 29 and 30 September in Iringa where a detailed workplan was developed, the team held a follow-up meeting in Morogoro on 11 December. The main items discussed included the following:

- Updates on protocols and demonstration site selection and establishment
- Updates on lead farmers' training and trainee selections as well as the development of training materials

- Procurement and delivery of seeds and fertilizers
- Plans for:
    a. Staffing arrangements for districts and deeper engagement with district extension staff
    b. Monitoring and reporting of site activities
    c. Data collection (agronomic, socioeconomic) – who does what, and when
    d. Documentation (publication of manuscripts and reports)

Details of the meeting are accessible at this link: http://africa-rising.wikispaces.com/file/view/Maize%20minutes%20-%20Dec%2011%20%28HS%20input%29.doc/571815455/Maize%20minutes%20-%20Dec%2011%20%28HS%20input%29.doc

3.2 Sensitization and training activities

Maize team: In the past quarter, a series of sensitization meetings were held in the districts of Mbozi, Kilolo, Kilosa, Kongwa, Kiteto, and Babati. Table 1 shows the attendance levels of community members. The main focus of sensitization activities was on lead farmers' experiences with project activities, farmers' challenges that need attention in the course of the remaining project life, and plans for the subsequent planting season.

Table 1: Status of visits and attendance during sensitization meetings for maize-related activities.

District	Number of sites visited	Attendance		
		Male	*Female*	Total
Babati	5	76	58	134
Kongwa	7	121	101	222
Kiteto	6	76	104	180
Kilosa	5	222	364	586
Kilolo	5	188	165	353
Mbozi	3	205	198	403
TOTAL	31			1,878

Lead farmers' experiences: Farmers in the districts of Kongwa, Kiteto, Babati, and Kilosa that participated in the project in the past year had a largely favorable view of the technologies that were established at the demonstration sites. In Kongwa and Kiteto districts, which are in a semiarid location, farmers were happy that they were able to realize some harvest despite the unfavorable weather conditions experienced last year. The same applied to Kilosa where levels of use of improved seed varieties and agronomic practices were low before the introduction of the project.

Challenges: The common challenges experienced by farmers in all the sites visited included the following:

- Availability and quality of agro-inputs: In most sites (especially remote ones in Kilolo and Kilosa) timely access to seeds, pesticides, and fertilizer is a great challenge. In Mbozi and locations where NAFAKA is present, the VBAA networks have helped to mitigate the problem but farmers still complain about the relatively high cost involved. A related challenge is from the counterfeit inputs on the market which dampen adoption prospects. Community members look forward to concerted efforts by concerned Government and private sector actors to address the problem so that

farmers do not invest in farm inputs that will lead to dismal changes in production levels.

- Pests and diseases: From all sites, stalk borers, termites, and fungal diseases were mentioned as key challenges. Also related to these in some locations were weeds such as *Striga*. In Babati, the problem of MLN was extensively discussed and measures for addressing it were suggested.
- Poor agronomic practices: Community members acknowledged that the use of good agronomic practices is a challenge. Extension staff rarely provide GAP knowledge to farmers.
- Postharvest management: Lack of proper storage facilities such as bags to store crops soon after harvesting was a challenge in Kilosa and Kilolo districts. For all sites, the cost of handling bags and other equipment was thought to be very high.
- Vagaries of weather were also mentioned as a challenge. This is because of an unpredictable cropping calendar which makes it hard for farmers to adhere to proper planting times; thereby crop yields are affected.

Photo 1: *Maize team discussing with farmers in Quash village, Babati district, the challenges in farming. B. Jumbo (CIMMYT) and C. Yangole (ARI Selian) showing farmers pictures of diseased maize (Photo credit: G. Ndibalema/IITA)*

Photo 2: *F. Kizito (CIAT) explaining to farmers about the importance of protecting natural resources at Ayamango village, Babati district (Photo credit: G. Ndibalema/IITA)*

As part of preparations for the 2015/2016 planting season, training sessions were held for village extension officers, lead farmers, and NAFAKA agronomists. The focus was on protocols for the establishment of demonstration sites and the responsibilities of each party (Africa RISING-NAFAKA staff, VAEOs, and lead farmers). In Mbozi, 5 VAEOS and 26 lead farmers were trained 30 November – 2 December. In Kilolo district, 4 VAEOs and 8 lead farmers were trained, whereas in Kongwa and Kiteto 404 lead farmers (216 female and 188 male) were trained at the village level from 21 October to 7 November. In addition, 3 VAEOs and 6 agronomists were trained in Kiteto (KINNAPA offices) on 15 December.

Rice team: In November, 14 NAFAKA agronomists were trained by the rice team on protocols that will be used for the establishment of demonstration plots. The two protocols were on Variety and Fertilizer demonstration (VarFFert demo) and a water-saving technology Alternate Wetting and Drying demonstration (AWWD demo). The AWWD demos will be conducted in Dakawa and Mkindo (irrigated ecosystems); the VarFFert demo will be conducted in Kilombero and Dakawa areas.

Photo 3: *NAFAKA and AfricaRice staff conducting a site visit in preparation for establishment of demonstration sites in Dakawa rice scheme*
(Photo credit: K. Senthilkumar/AfricaRice)

Vegetables team: During October and November, the vegetables team conducted 2 training missions to Misufini, Ichonde, and Kisawasawa in Kilombero district. The trainings focused on general seedbed preparation, IPM, harvesting, and record keeping. In addition to lead farmers and village extension officers located in the 3 pilot villages, the project team also trained 21 NAFAKA/CRS field agents in IPM during the second training mission to the Kilombero district. Regarding IPM training, trainers taught farmers how to monitor crops for emerging pests and diseases and introduced them to several potential pests and diseases, as well as to effective pesticides to combat these as the last resort. The training was conducted with a projector (including a generator) to let participants see photos of the different pests and diseases, because only mentioning the names of the pests and diseases or describing their symptoms is often too abstract. After a theoretical lecture with photos of pests and diseases, the trainers and participants visited demonstration plots and different home gardens to identify the pests and diseases in practice and discuss preventive measures, potential biological and chemical pesticides, as well as the safe use of pesticides.

Harvesting techniques were especially taught for leafy vegetables (amaranth, jute mallow, and African nightshade) since these were the crops that were mature enough for the first harvest. The project

team taught participants when and how often the leafy vegetables needed to be harvested to maintain a healthy plant. Both trainings on IPM and harvesting techniques were very interactive. Participants were encouraged not only to ask questions but also to share their experiences to make the training realistic and relevant. Finally, selected pesticides that had been discussed during the training and handouts in the Kiswahili language were given to each participant at the end of the training.

Photo 4: *Farmers being trained on record keeping in Kilombero district. (Photo credit: P. Joseph/AVRDC)*

Day 2 of the training on IPM and harvesting techniques conducted in November 2015 was followed by a training in record keeping; This is a new addition to the training schedule used in year 1 of the project and focuses on:

- quantifying input costs to identify possible cost drivers;
- quantifying yields/use yield records;
- calculating profits considering the recorded costs and the yields sold to identify the most profitable vegetable crops (and varieties);
- determining a more profitable input use; and
- providing input cost data and yield data for the project M&E system.

Participants were provided with record keeping books which had been developed according to templates used by the Tanzanian Agricultural Productivity Program (TAPP). By using the first bundles of leafy vegetables harvested in the demonstration plot, the participants under the supervision of the trainers filled in the data. These included cost components such as costs for soil preparation, nursery management, planting, weeding, irrigation, pesticides, and fertilizer. The quantities harvested were subdivided into home consumption, after harvest losses and produce sold. The latter amount was recorded together with the selling price. To facilitate the record keeping, each village received a spring scale.

3.3 Site selection and establishment of demonstration sites

All sub-teams finalized the selection of demonstration sites, either as part of the sensitization and training meetings or thereafter. Table 2 shows the sites selected for maize activities. In total, 39 villages were selected from 7 districts. Details of the number of demonstration sites and learners in each village will be reported in the subsequent quarterly reports.

Table 2: Districts selected for mother and baby demonstration sites for maize activities.

District	Babati	Kilosa	Kongwa	Kiteto	Mvomero	Kilolo	Mbozi
Villages	Sabilo	Ulaya Kibaoni	Ndurugumi	Songambele	Kwadoli	Utengule	Itewe
	Seloto	Ng`ole	Vihingo	Mbigili	Dihombo	Mtitu	Itetula
	Hallu	Kitete	Chang'ombe	Ngipa	Chigugu	Kitowo	Isela
	Quash	Madoto	Sagara 'A'	Esiguta	Msufini	Ng'uruhe	Sasenga
	Ayamango	Maguha	Lengaji	kiperesa	Lukenge	Ukumbi	Shiwinga
			Ndalibo	Kaloleni	Hoza		
				Mwanya			

After village selection, the required agro-inputs were procured and delivered to districts where the rain season had started. In some (Babati, Kongwa, Kiteto, Mbozi, and Kilolo) planting of the demonstration plots started in the past quarter.

For rice activities, since the implementation team is being reorganized, no exhaustive work on site selection was done. The new team in place is working hard to ensure that not much time is lost regarding site selection. For vegetable activities, the selection of 6 pilot villages in Iringa region was completed in October. During a field trip to Iringa and Kilolo districts, 11 villages were visited, of which 6 were selected as pilot villages (Table 3). The main selection criteria were: 1) water availability; 2) market access; 3) farmers' experience with vegetable farming; 4) availability of farmers' groups; 5) commitment of local administration and extension services.

Table 3: Selected pilot villages for vegetable activities in Iringa region.

Name of the village	District	Area
Luhindu	Kilolo	Highlands
Lukani	Kilolo	Highlands
Mtitu	Kilolo	Highlands
Mbigili	Kilolo	Lowlands
Kalenga	Iringa rural	Lowlands
Mangalali	Iringa rural	Lowlands

Selection of additional sites for postharvest management activities will follow closely and will rely on the selections made by the other three teams.

3.4 Site Studies

Following on a series of trainings of farmers and processors during the last quarter, the postharvest team conducted a study on constraints to maize flour fortification in 3 project districts: Kiteto, Mvomero, and Kongwa. The survey identified the major processing constraints of the major maize millers, especially those regarding food fortification which will then form a basis for the development of training modules for millers. During the survey, 10 maize millers, 133 distributors, and 259 consumers were interviewed. Data entry and analysis of the data will be done in the next quarter. In addition, to evaluate the nutritional quality of fortified maize produced by the processors and marketed and consumed in the project locations, samples of fortified maize were collected from the maize millers, distributors, and consumers during the survey. All the samples will be analyzed for protein, carbohydrate, and residual fortificants (iron, zinc, vitamin B12, and folic acid).

3.5 Development of training materials and manuals

The maize team has developed draft demonstration protocols, training manuals, and fact sheets which will be finalized and made available to trainers in the course of the current year. The other teams (vegetables and rice) are also planning to do the same. For the postharvest team, a training manual on the postharvest handling of maize and legumes is being finalized. The manual will potentially enhance the knowledge of farmers on good postharvest management practices (harvesting, processing, storage, and utilization) of cereal crops. The manual covers proper harvesting, the recommended drying process, storage techniques, and warehouse management. In addition, a recipe book was drafted highlighting the utilization of locally available crops to prepare nutrient-dense foods to improve the nutrition of children under 5 years of age. The recipe book provides a deep understanding on ways to feed infants and young children. The pros and cons of the early/late introduction of supplementary foods to children were highlighted to reduce the risk of improper child nutrition. The recommended feeding practices with supplementary foods made from cereals, roots and banana, legumes and meat, vegetables, and some of the oil seeds were addressed. Ways on how to prepare the meals with the recommended ratios were described.

4 ACHIEVEMENTS AND RESULTS

General

The workplan and budget reviews and approval for all sub-teams were finalized except those for rice activities which are still under development. Teams have been able to start activities relatively early in contrast to last year when unavoidable delays were experienced.

Maize

i. A review meeting was held in December to finalize plans for the implementation of project activities in the next quarter.
ii. Sensitization meetings and lead farmer training sessions were conducted in most project sites. It is very encouraging that many farmers are willing to participate in project activities and we anticipate receiving more farmers as we continue implementing activities.
iii. New sites were selected in Mbeya and Iringa regions as well as in Kongwa, Kiteto, and Mvomero districts.

iv. Farm inputs (seeds and fertilizers) were delivered on time; distribution to the respective action sites is in progress as the season starts in different sites.
v. Establishment of mother and baby demos has already started in Babati, Kongwa, Kiteto, Kilolo, and Mbozi districts.
vi. Agronomists and VAEOS were brought on board and trained as a way of improving the dissemination and sustainability of project activities.

Rice

A new team led by a national agricultural institution was constituted to lead rice activities with a hope that this will deepen sustainability and dissemination.

i. NAFAKA agronomists were trained on protocols for the establishment of demonstration plots and data management.

Vegetables

i. 189 farmers and extension officers from 3 pilot villages in Kilombero district participated in the establishment of demonstration plots and were trained in soil preparation, seedling transplantation (including spacing and the appropriate use of fertilizer during planting and seeding), as well as irrigation practices.
ii. 105 farmers and 3 village extension officers from the 3 pilot villages in Kilombero district in addition to 21 NAFAKA/CRS field agents were trained in IPM practices and proper harvesting techniques for leafy vegetables.
iii. 32 farmers from the 3 pilot villages in the Kilombero district were trained in record keeping to increase farmers' awareness of the major cost drivers during input use and to enable them to identify the most profitable vegetable crops and varieties.
iv. 307 seed-kits were distributed to farmers from the 3 pilot villages in Kilombero district as well as 126 seed-kits to 21 NAFAKA/CRS field agents for establishing 6 home gardens in each of their home villages in Kilombero district.
v. 200 record booklets were handed out to training participants (including 100 record booklets that were given to the NAFAKA/CRS field agents) to ensure that farmers keep records of their home garden trials to improve project monitoring. 150 more booklets will be distributed during the next quarter.
vi. 6 new pilot villages were selected in Kilolo and Iringa rural districts of Iringa region.

Postharvest

i. A survey aimed at addressing constraints to food fortification was completed, targeting 402 stakeholders.
ii. A postharvest training manual and recipe book have been developed.

5 PROBLEMS AND CHALLENGES

i. The unpredictable weather conditions have been a challenge with the result that farmers, especially in semiarid locations, want to start planting the moment they get some rainfall. Efforts by the project team, based on available rainfall projections, to request farmers to delay planting a bit have not been successful in some locations.

ii. As October and November are work-intensive months for farmers in the Kilombero district pilot villages, they were often able to participate only in day 1 of the training. This led to a relatively low participation in the record keeping training on day 2. Therefore, the project team has decided to provide another record keeping training during the next field trip and to distribute 150 more record booklets among beneficiaries and secondary knowledge recipients.

iii. Some of the tomato crops in the Kisawasawa village (Kilombero district) were destroyed by monkeys. The project team therefore advised the training group to spread chili powder on bananas and scatter them in the demonstration plots.

iv. Negative attitudes towards food fortification were detectable during the constraints survey by the postharvest team. Some of the processors reported that fortification of maize would discourage their customers from buying maize meal/flour and may negatively affect their market – some farmers have the perception that fortified maize flour affects human health.

6 PLANNED ACTIVITIES FOR QR2, Year 2

6.1 General

i. Adaptation (from NAFAKA) and sharing of different data collection forms for uniform reporting by the different project teams.
ii. After planting, the project coordination team will carry out adoption studies. Plans for the studies will be finalized during the next quarter.
iii. Formation of R4D/Innovation Platforms will be revived for maize and vegetables teams learning from the experience of the ongoing and previous projects in the intervention areas.
iv. There will be further collection of data and development of recommendation domains for scaling.

Specific activities for each team include the following:

6.2 Maize team

i. Planting of the demonstration plots. Planting in some areas is already in progress.
ii. Writing of production guides
iii. Continued training of lead farmers and agronomists
iv. Development of extension materials
v. Monitoring of progress/advisory visits

6.3 Rice team

i. A stakeholders' meeting will be held to constitute the new team for rice activities
ii. The workplan and budget for activities under new management will be reviewed
iii. Site visits and selection for rice activities
iv. Establishment of demonstration plots for the activities.

6.4 Vegetables team

i. Conduct more training in Kilombero on organoleptic tests, postharvest handling, and cooking show activities.
ii. Conduct a second training session on record keeping for farmers to improve their business planning skills and ensure the collection of production cost and yield data for the project monitoring system.
iii. Conduct a baseline survey in the 3 pilot villages in the Kilombero district and the 6 future pilot villages in Iringa region.
iv. Conduct a preliminary assessment of the baby and grandbaby trials in the 3 pilot villages in Kilombero district.
v. Conduct an advisory visit to the 9 previous pilot villages in Babati, Kiteto, and Kongwa districts.

6.5 Postharvest management and nutrition team

i. A scaling strategy for the technologies will be formulated.
ii. Finalization of the training manual on the postharvest handling of crops in maize and legumes.
iii. Nutrition training will be conducted in Kilosa, Kiteto, Kilolo, Mvomero, Mbozi, and Kongwa districts.
iv. Maize flour millers in the 3 districts of Mvomero, Kongwa, and Kiteto will be trained on maize fortification.

7 SPECIAL ISSUES

In view of the slow progress made so far towards achievement of the rice-related project goals, it was necessary to review the leadership and composition of this sub-team. From January 2016, ARI–Dakawa will lead the rice activities. This change brings along a revision of the workplan and budget and might therefore lead to some delays in the implementation of activities.

It is hoped that rain distribution will be good across all project sites unlike the previous year in which a prolonged dry spell affected most sites.

8 CROSS-CUTTING ISSUES

8.1 Gender integration

The project is working with men and women and in groups. In some cases, only women's and youth farmers' groups are being supported. Participation of all these categories in project activities is encouraging. For vegetables-related activities, the participation of female farmers is very high in all 3 pilot villages in Kilombero district. The project team encouraged the local training group leaders to invite female farmers in particular to participate in the record keeping training. This turned out to be a successful initiative since about 60% of the participants in that training were women. The participation of female farmers during all other training activities was also always slightly higher than 50%.

8.2 Behavioral change communication

For maize/legumes work, farmers are engaged in different ways, holding meetings and farmer field days and participating in field activities during the implementation of demo activities. These also attract the participation of those farmers who come and observe what others are doing. During meetings with farmers in the past quarter, the team received many farmers asking to join the farmers' groups to participate in the project activities. Similarly, during the field days conducted by the maize team, it was observed that many farmers are ready to start using improved varieties and management practices as a result of the potential benefits expected from adoption. This has been confirmed in Babati during meetings with farmers to organize training sessions for lead farmers where more farmers were coming to ask to be involved in project activities. Similarly in Kongwa and Kiteto, more farmers are asking for the seeds of the varieties that we are promoting. So we are seeing that demos, farmer field days, and farmers' engagements in meetings and project activities are good and effective tools of communication that are delivering messages and creating the interest that leads to changes in decision-making by farmers and so to behavioral change.

8.3 Environmental compliance and natural resource management

For vegetables, the project team realized during the sensitization meetings in all 3 pilot villages in the Kilombero district that all these villages intensively apply a rice mono-cropping approach which has been practiced in the district for decades. This had led to nutrient leaching and soil compaction. To counteract this problem the team introduced legumes (vegetable soybean and vegetable cowpea) to increase nitrogen fixation in the soil. The team hopes the results of the demonstration plots will persuade farmers to include legumes in their crop rotations; this would also help to reduce chemical fertilizer application in the particular areas.

In maize-based activities, we have integrated GAP being promoted to ensure the sustainable use of soil and water. In addition, the maize team is promoting natural resource management practices such as the integration of legumes in maize cropping, judicious integration of fertilizers, use of tie ridges for soil and water conservation; all are meant to contribute to natural resource management. Using high yielding and more resistant varieties combined with improved production practices such as appropriate spacing to increase seedling and plant health, organic fertilizers, as well as other IPM practices, may reduce the application of pesticides and chemical fertilizer and help to reduce environmental pollution.

8.4 Monitoring and evaluation

During the current quarter, only data on output indicators have been reported. During the next quarter when a full cycle of implementation will be realized, activities leading to data on project outcomes will be generated and reported since farmers will then be expected to have adopted what they learned from the project activities during the previous year/planting season. To standardize data collection for all teams, data collection forms have been designed (adaptations from NAFAKA data collection forms) and are being tested for reporting using tablets with Kobocollect platform. Discussions are ongoing on whether to adopt this tool or use the existing platform from NAFAKA, one of the project partners.

9 ANNEXES

Annex 1: Performance against PMP indicators.

Note: Figures reflect cumulative achievements to date. New data realized during the current quarter are highlighted in red.

Indicator	FY Target	FY Achievement	% FY Achievement	% Female	% Male
1. Number of farmers and others who have applied new technologies or management practices as a result of USG assistance	13,120				
2. Number of hectares under improved technologies or management practices as a result of USG assistance	9,400				
3. Number of individuals who have received USG-supported short-term agricultural sector productivity or food security training	10,925	1,813 847	16.6 7.8	39.6 40	60.4 60
4. Number of food security private enterprises (for profit), producers' organizations, water users' associations, women's groups, trade and business associations, and community-based organizations (CBOs) receiving USG assistance	122	73 31	59.8 25.4		
5. Number of rural households benefiting directly from USG interventions	7,200	2,213 847	30.7 11.8	44.9 40	55.1 60
6. Number of beneficiaries with home gardens or alternative crops as a proxy for access to nutritious foods and income	200	1,105 308	741.6 154	44.2 43.5	55.8 56.5

Annex 2: Success stories.

None submitted with this report.